DOCUMENT RESUME

ED 344 683 PS 020 498

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TITLE Reciprocal Teaching: A Review of Nineteen Experimental Studies.
PUB DATE Apr 91
NOTE 25p.; Paper presented at the Annual Meeting of the American Educational Research Association (72nd, Chicago, IL, April 3-7, 1991).
PUB TYPE Speeches/Conference Papers (150) -- Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Ability; Academic Achievement; Adults; Children; *Classroom Communication; Comparative Analysis; *Dialogs (Language); Educational Strategies; Elementary Secondary Education; *Instructional Design; *Reading Instruction; Standardized Tests; Student Characteristics; Teacher Guidance; Teacher Made Tests; *Teaching Methods
IDENTIFIERS *Reciprocal Teaching

ABSTRACT

Nineteen studies of the use of reciprocal teaching to help students improve their comprehension of texts are reviewed. The studies are grouped according to the type of instructional approach used, the type of student involved, and the type of outcome measure used. Two main approaches are identified: (1) reciprocal teaching only, in which the instruction consists of models, prompts, and hints, and instruction occurs in dialogues between the teacher and student; and (2) explicit teaching before reciprocal teaching (ET/RT), in which there is extensive teacher-led instruction in cognitive strategies before dialogues begin. Results in the studies were usually more significant when ET/RT instruction was used than when reciprocal teaching only was used. Results were usually nonsignificant when below-average students were taught, but significant with all other students. Results were usually significant when experimenter-developed tests were used, but nonsignificant with standardized tests. Questions that emerged from analysis of the studies concerned the best cognitive strategies to teach; the best settings for teaching cognitive strategies; the best prompts and instructional procedures for teaching the strategies; the type of students for whom the teaching of the strategies is most effective; and the best outcome measures to use. Four tables provide results from the studies, and two tables list and categorize the studies. Contains 31 references. (LB)

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Reciprocal Teaching: A Review of Nineteen Experimental Studies

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PS 020498

Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, April 1991

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Abstract

This is a review of 19 studies that used reciprocal teaching to help students improve in their ability to comprehend text. Since the introduction of the concept of reciprocal teaching by Palincsar and Brown (1984), researchers have conducted a number of studies that attempt to replicate and/or extend the original study. The results were usually more significant when explicit instruction in the cognitive strategies was provided before the reciprocal teaching began (median effect size = .93) than when reciprocal teaching only was used (M es = .34). Results were mostly non-significant when below average students were taught (M es = .48), yet usually significant when all other students were taught (M es = .57). Results were usually significant when experimenter-developed tests were used (M es = .87), yet usually non-significant when standardized tests were used (M es = .32).

Following the introduction of the concept of reciprocal teaching in Palincsar and Brown's (1984) exemplary study, there have been a number of studies that attempted to replicate and/or extend the original study. Because of the theoretical and instructional interest, we prepared this paper in which we review, organize, and summarize the results of all these studies and discuss the implications for both research and practice.

Defining reciprocal teaching.

As is unfortunately common in education, terms are given a variety of meanings as they are used by researchers and teachers. As we gathered and read these studies, we learned that two overlapping but different approaches to reciprocal teaching instruction had been used: the original Palincsar and Brown (1984) approach which we labeled "reciprocal-teaching-only" and a later but overlapping approach which we labeled "explicit teaching before reciprocal teaching" or ET/RT.

Reciprocal teaching only. In the classic study by Palincsar and Brown (1984) reciprocal teaching referred to a set of learning conditions where children "first experience a particular set of cognitive activities in the presence of experts, and only gradually come to perform these functions by themselves" (Lonberger, 1989). The cognitive activities involved learning and practicing four comprehension fostering and comprehension-monitoring strategies: generating questions, summarizing, clarifying, and predicting. "In reciprocal teaching, a teacher and a group of students take turns leading a dialogue concerning a section of text" (Lonberger. 1989). "The expert, or teacher, initially takes on the major responsibility for the group's activities. ...The teacher models and explains, relinquishing part of the task to novices only at the level each one is capable of negotiating at any one time. Increasingly, as the novice becomes more competent, the teacher increases her demands, requiring participation at a slightly more challenging level." (Brown and Palincsar, 1985, p.13). "Reciprocal teaching encourages the active involvement of the students as well as allowing the teacher the opportunity to serve as on-line diagnostician for each child, providing him/her with appropriate instruction geared to the child's individual needs" (Lonberger, 1989. p17).

In the reciprocal teaching only approach there was no instruction before the dialogues. During the dialogues the teacher provided prompts, models, cues, and feedback on the use of cognitive strategies, as illustrated by the following examples taken from the Palincsar and Brown (1984) study:

(Questioning)

T: What would be a good question about pit vipers that starts with the word "why?"

S: (No response)

T: How about, "Why are the snakes called pit vipers?"

- - - - - - - - - -

T: That's good. Keep going.

S How do spinner's mate is smaller than...How am I going to say that?

T: Take your time with it. You want to ask a question about spinner's mate and what he does, beginning with the word "how."

S: How do they spend most of his time sitting?

T: You're very close. The question would be "How does spinner's mate spend most of his time?" Now you ask it.

S: How does spinners mate spend most of his time.

- - - - - - - - - -

S: Snakes' backbones can have as many as 300 vertebrates almost ___ times as many as humans."

T: Not a bad beginning, but I would consider that a question about a detail. See if the next time you can find a main idea question and begin your question with a question word - how, why, when....

(Summarizing)

T: That was a fine job, Ken, but I think there might be something to add to our summary. There is more information that I think we need to include. This paragraph is mostly about what?

S: The third method of artificial evaporation.

We believe that nine of the nineteen studies in this review fit into the above definition: Fischer Galbert, 1989; Helfeldt and Lalik, 1976; Jones, 1987; Labercane and Battle, 1987; Manzo, 1969; Padron, 1985; Palincsar and Brown, 1084; Rich, 1989; and Rush and Milburn, 1988. We labeled this group of studies "reciprocal teaching only."

Explicit teaching before reciprocal teaching (ET/RT). As investigators conducted reciprocal teaching studies, another, overlapping form of reciprocal teaching emerged. This second definition of reciprocal teaching refers to the practice found in a number of studies of providing explicit teaching in the cognitive strategies **before** the reciprocal teaching dialogues begin. An example of this second approach is the work of Palincsar (1987), who provided six days of teacher-led explicit instruction in the strategies of questioning, summarizing, predicting and clarifying. This instruction -- which involved teacher presentation, guided student practice, and independent student practice -- took place **before** the reciprocal teaching dialogues began. Levin (1989) provided twenty periods of teacher-led instruction on a total of ten different cognitive strategies. However, the median length of instruction for studies in this ET/RT category was four class sessions. The explicit teaching in these studies was followed by the reciprocal teaching dialogues. The dialogues appear to be the same in both conditions. As will be elaborated in the discussion, the ET/RT studies differed both in the cognitive strategies which were taught and in the prompts or cognitive facilitators which were used to teach these strategies.

Ten of the nineteen studies appeared to belong in the ET/RT category: Brady, 1990; Lysynchuk, et al, 1990; Palincsar, 1987; Taylor and Frye, 1988; Williamson, 1989; Nolte and

Singer, 1985; Dermody, 1988; Lonberger, 1988; Shortland-Jones, 1985; and Levin, 1989. We labeled this category "explicit teaching before reciprocal teaching" (ET/RT).

One reason for this wide range in instructional activities all taking place under the term reciprocal teaching is that the readers of the earlier articles were not told precisely how cognitive strategies were taught during reciprocal teaching. In the classic article on reciprocal teaching, that of Palincsar and Brown (1984), readers were given examples of dialogue illustrating how a teacher provided support during reciprocal teaching through the use of prompts and feedback, but there was little discussion on **how** the cognitive strategies were taught, or whether specific prompts or facilitators were provided to help the students learn them. Because of this ambiguity, researchers conducting further studies varied in their interpretation of the concept of reciprocal teaching and varied in the type and amount of instruction that was built into their studies.

One serendipitous advantage of such ambiguity is that there was a wide range of instruction in the subsequent studies, and we were able to probe the differences which occurred in order to learn new lessons about effective instruction.

Given this natural variation, we hoped to learn more about reciprocal teaching by grouping studies according to the type of instructional approach used in the study, the type of student, and the type of outcome measure. In order to group these studies, we read and studied the instructional procedures used in each, including those in the dissertations. Most of the ET/RT studies were easy to classify because the explicit teaching was described in the report. However, in order to be sure about classifying a study as reciprocal teaching only, we wrote or phoned the authors, sometimes a second and third time. When necessary, we contacted the advisers. All authors and advisers were fully cooperative, and we thank them. (It is unfortunate that there is no tradition of providing detailed descriptions of the instructional procedures. Indeed, these procedures are often printed in small type in the journals of the American Psychological Association).

In sum, our reading of these studies indicated that there were two approaches to reciprocal teaching: reciprocal teaching only in which the instruction consisted of models, prompts, and hints and in which all the instruction took place during the dialogues; and explicit teaching before

reciprocal teaching (ET/RT) in which there was extensive teacher-led instruction in cognitive strategies **before** the dialogues began. We analyzed these two types of studies separately in our review in order to test whether these different approaches yielded different results.

Organizing results

In addition to the above division by **instructional approach,** as we continued the review we saw two other divisions emerge from these studies: type of student and type of outcome measure.

Type of Student. All available students in a single grade or classroom were often used in many of these studies. In other studies, (e.g. Palincsar and Brown, 1984; Palincsar, 1987) only students who were at grade level in decoding but below grade level in comprehension were selected. (We called these students "good/poor). In the remaining studies below average students were selected without regard to decoding ability. As we progressed, we realized that there were only a few studies that used good/poor students and those results were similar to those obtained when **all** students were used. Therefore, we combined the two groups into a classification we called "good/poor/all." The second classification was labeled "below average" and contained those studies where the sample consisted of below average students regardless of decoding ability. This category also included studies that selected students from remedial or learning disabled classrooms.

Type of test. We created a third classification based upon the outcome measures used in these studies. Investigators used standardized reading tests or experimenter-developed tests, and some used both approaches. The experimenter-developed tests included passages followed by questions requiring short answers and/or requests to summarize material.

Thus, each study was classified three ways and the results are presented separately for each classification. The three classifications are:

a) the of instruction provided (reciprocal teaching only versus explicit teaching before reciprocal teaching (ET/RT)),

b) the type of students taught ("good/poor/all" versus below average),

c) the outcome measures used (standardized reading tests versus experimenter-developed tests).

Locating Studies

We searched the ERIC and Dissertation Abstracts data bases for experimental studies that used reciprocal teaching. Studies were selected only if the words reciprocal teaching were explicitly stated and if they also referenced the work of Palincsar and Brown (1985) or the earlier work of Manzo (1969). All studies in this review, then, were experimental studies that explicitly used the term reciprocal teaching to refer to the instruction which was provided. Because this is an ongoing review, we also ask readers to notify us of any additional studies we might have missed.

There are other intervention studies in education that contain some components of reciprocal teaching, namely students working together in small groups and supporting each other. Cooperative learning is the most notable example; although, student support also took place in other studies such as those by King (1989, 1990). We did not include these studies because they lacked the "expert scaffolding" which is provided by the teacher in reciprocal teaching, as well as the gradual release of responsibility to the students. We also wanted to limit our focus to those studies that explicitly used the term reciprocal teaching.

Results

We will first present the overall results for all nineteen reciprocal teaching studies. This will be followed by overall results for the three main classifications: instructional approach, type of student, and type of test. Last, we will look at combinations, particularly instructional approach by type of student by type of test.

Summary of all results.

1. Reciprocal teaching overall. The overall results for all studies that used reciprocal teaching, regardless of instructional approach, are evenly distributed between significant and non-significant results with an overall median effect size of .52 (Table 1).

2. Instructional approach. The results favor the explicit teaching of comprehension strategies **before** beginning reciprocal teaching (es = .60) rather than reciprocal teaching only (es = .34) (Table 1).

3. Type of student. Overall, the results are equally effective for the two types of students, with a median effect size of .57 for the studies using good/poor/all students and .48 for the studies using below average students (Tables 2 & 3). However, as we shall see below, there are some interesting "interactions" between students and type of test.

4. Type of test. There was a strong effect favoring experimenter-developed tests. Across all students the effect size was .32 when standardized reading tests were used and .87 when experimenter-developed tests were used (Table 4).

5. Instructional approach by type of student. For studies using good/poor/all students, reciprocal teaching was more effective when experimenter-developed tests were used (es = .85) than when standardized reading tests were used (es = .44) (Table 2). With these students, the strongest effects were obtained when there was the combination of teaching cognitive strategies before reciprocal teaching **and** using experimenter-developed tests (es = .93) (Table 2). For the below average students, there was only a single study in which cognitive strategies were taught with ET/RT and experimenter developed tests were used, and it was successful (es = .87) (Table 3).

For studies using below average students, effect sizes were higher following ET/RT (es = .87) than following reciprocal teaching only (es = .14) (Table 3). Effect sizes were much higher when experimenter-developed tests were used (es = 1.16) than when standardized reading tests

were used (es = .14). The **weakest** effects were obtained when the reciprocal teaching only instructional approach was used and results assessed using standardized reading tests (es = -.21) (Table 3).

In sum, reciprocal teaching was most effective, for both types of students, when explicit teaching was provided before the reciprocal teaching and experimenter-developed tests were used. The results were particularly weak when reciprocal teaching only was provided for below average students and standardized reading tests were used.

6. Grade level of students. Students of all ages, 7 years through adult, were found in significant and non-significant studies. However, there was no study that was significant when students in the third grade were taught.

7. Number of sessions. The number of sessions ranged from 6 to 100. There was no relationship between the number of sessions and the significance of the results.

8. Size of instructional group. Instructional group size ranged from 1 student to 22 students. We investigated the relationship between the size of the instructional group and success. Surprisingly, for both the good/poor/all students and the below average students the median group size of the significant studies was **higher** than the median group size in the non-significant studies.

9. Number of strategies taught. The number of strategies taught ranged from 1 to 10; however, in eleven of the studies four cognitive strategies were taught . No relationship was found between number of strategies taught and student achievement. There were successful studies in which only one cognitive strategy was taught (question-generation) and a successful study in which the ten cognitive strategies of Informed Strategies for Learning (Paris, Cross, and Lipson, 1984) were taught.

10. Experimenter versus teacher. We also classified studies according to whether the experimenter did the teaching or whether teachers were trained to lead the reciprocal teaching. There were nine studies in each group and the results were identical in both cases. In both cases one third of the studies had significant results, one third had both significant and non-significant results, and one third of the studies had results that were non-significant.

Discussion

There were six interesting questions that emerged from our analysis of this research and whose answers might be of interest to both teachers and researchers.

How effective is reciprocal teaching in improving student comprehension?

Reciprocal teaching was most effective when there was explicit teaching of cognitive strategies before beginning the reciprocal teaching dialogue. This trend was strongest in studies using good/poor/all students and experimenter-developed tests. There were too few studies involving below average students, but the trend favored providing explicit teaching before the dialogues and **not** using standardized reading tests.

There were more significant results when experimenter-developed tests were used, and fewer significant results when standardized tests were used.

The results were weakest when below average students were involved in reciprocal teaching only and, particularly, when standardized tests were used to assess the outcomes.

What are the best cognitive strategies to teach?

Most of the studies taught the four strategies introduced by Palincsar and Brown (1984), strategies which serve to promote both comprehension-fostering and comprehension-monitoring activities. But there were also successful studies that only taught the single strategy of question-generation, successful studies that taught both question-generation and summarization, and a successful study that taught the ten ISL strategies (Levin, 1989). Based on the studies in this

review, one cannot make a definitive statement on which strategies are the best to teach; there is a need for more research on the effects of individual strategies and combinations of strategies. Nevertheless, based on this research, the strategy of question-generation, taught individually and in combination with others, had the highest success rate, followed by summarization. In the future we would be particularly interested in studies contrasting the learning of question-generation and summarization where the results are assessed by both summarization and comprehension outcome measures.

We also see a need for more research on the cognitive strategies of prediction and clarification, particularly when contrasted with question-generation and/or summarization. Brady (1990) suggests that clarification and prediction skills are difficult to use when studying history text. He noted that it is difficult to use predicting as a strategy when reading history text because history textbooks do not have a canonical form but a chronological sequence. Brady (1990) also noted that clarification is difficult to use as a skill when reading history textbooks because the new terms are frequently specific to the text. We would be interested in further exploration of Brady's ideas.

One skill which is similar to clarification is the group of "fix-up strategies" or procedures one goes through when one does not understand the text. Bereiter and Bird (1985) demonstrated that teaching such strategies can lead to improved comprehension. We would be interested in seeing these procedures taught through reciprocal teaching.

In sum, we are uncertain which are the best strategies to teach with reciprocal teaching or the best number to teach. The two strongest candidates are question-generation and summarization. Both asking a question and summarizing serve a comprehension-fostering function in that they require one to search the text and perform deeper processing. They also serve a comprehension-monitoring function in that difficulty in performing either task signals the learner that there are comprehension difficulties.

What are the best settings for teaching cognitive strategies?

Is it more effective to explicitly teach cognitive strategies before beginning the reciprocal teaching, or are such strategies best introduced and taught in the context of the reciprocal teaching dialogues? In this review, although there were successful studies using each approach, the balance of significant to non-significant results and the effect sizes favored providing students with explicit teaching in cognitive strategies **before** the reciprocal teaching dialogue begins. This finding was particularly strong when the good/poor/all students were taught and the results assessed using experimenter-developed tests. There were only three successful studies that taught below average readers, and two of those three provided explicit teaching before the reciprocal teaching dialogues. Good models of studies which used explicit teaching before the dialogues were Brady (1990), Palincsar (1987), and Taylor and Frye (1988).

Based on this research, we would recommend the explicit teaching before reciprocal teaching approach because it has been successful with both regular and below average students.

There is, however, a third possible approach which has not appeared in this review, and that would be a case where there was explicit teaching **within** the dialogues. It would be interesting to test the effectiveness of this approach. We also note a fourth approach; there have been other studies which successfully taught question-generation or summarization using explicit instruction procedures but without using reciprocal teaching (e.g. King, 1989, 1990; Grajia, 1988). In contrasting their approach with reciprocal teaching only, we might gain further insights into the effects of reciprocal teaching.

What are the best prompts for teaching these strategies?

Which facilitators or prompts are most effective for teaching the cognitive strategies? We looked at the facilitators or prompts that were used to teach the two major cognitive strategies -- question-generation and summarization -- in hopes of identifying the most effective facilitators. We were somewhat surprised to find that in the context of these studies, all of the facilitators used to teach question-generation and summarization were equally successful. Indeed, nine of the ten

studies that taught cognitive strategies were successful in at least one of the two types of outcome measures. The question, then, of which facilitators are most useful for teaching cognitive strategies awaits future experimental studies that contrast the use of different facilitators for teaching the same cognitive strategy.

What are the best instructional procedures for teaching the strategies?

In order to answer this question, we read through the instructional procedures of each study in an attempt to identify interesting variables. We found six such variables:

a) regulate the difficulty of the materials by starting with materials below the grade level of the students.

b) regulate the difficulty of the instructional task by starting with the teacher doing the first part of the task.

c) provide cue cards giving the prompts which students can refer to during the dialogues.

d) model the process of using the prompts in developing questions and summaries.

e) provide models of good questions and summaries.

f) gradually increase student responsibility during the dialogues by diminishing the prompts and models, increasing the complexity of the material, and putting all the "steps" together.

What are the best outcome measures to use?

There were two types of outcome measures used in these studies: standardized reading tests and experimenter-developed tests. Overall, 4 of 13 results were significant when standardized reading tests were used, compared to 8 of 10 ten results when experimenter-developed tests were used. Further, in four of the five studies in which both forms of tests were used, the results were significant when the experimenter-developed tests were used and non-significant when the standardized reading tests were used. It appears, then, that significant results were obtained much more frequently when experimenter-developed tests were used.

For which students is teaching these strategies most effective?

The procedure of providing explicit teaching before the reciprocal teaching dialogues appears to have been effective for all types of students, from grades four through adult. For the good/poor/all students, eight of nine studies yielded at least one significant result when explicit teaching was used, whereas only two of four studies yielded significant results when reciprocal teaching only occurred.

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Table 1

Effect Sizes for ALL Studies[a]

	Sign.	S/NS	Non-Sign.	Median[b] Effect Size
All Studies				
Taught cognitive strategies before RT	4	5	1	.60 (8)
RT only	3	0	6	.34 (5)
Total	7	5	7	.57 (13)

[a] Each study was counted only once in each of the appropriate tables. If a study had two dependent measures for a specific category, an average effect size was used.

[b] The number in parentheses after each effect size is the number of studies on which it was based.

TABLE 2

Effect Sizes for GOOD/POOR/ALL Studies[a]

	Sign.	S/NS	Non-Sign.	Median[b] Effect Size
All Studies				
Taught cognitive strategies before RT	3	4	1	.57 (7)
RT only	2	0	2	.59 (2)
Total	5	4	3	.57 (9)
Standardized Tests				
Taught cognitive strategies before RT	2	0	3	.32 (5)
RT only	1	0	1	.84 (1)
Total	3	0	4	.44 (6)
Experimenter Developed Comprehension Measures				
Taught cognitive strategies before RT	5	1[c]	1	.93 (6)
RT only	1	0	1	.34 (1)
Total	6	1	2	.85 (7)

[a] Each study was counted only once in each of the appropriate tables. If a study had two dependent measures for a specific category, an average effect size was used.

[b] The number in parentheses after each effect size is the number of studies on which it was based.

[c] Grade 4 was significant; grade 7 was not.

TABLE 3

Effect Sizes for BELOW AVERAGE Students[a]

	Sign.	S/NS	Non-Sign.	Median Effect Size[b]
All Studies				
Taught cognitive strategies before RT	1	1	0	.87 (1)
RT only	1	0	4	.14 (3)
Total	2	1	4	.48 (4)
Standardized Tests				
Taught cognitive strategies before RT	1	0	1	.36 (1)
RT only	0	0	4	-.21 (2)
Total	1	0	5	.14 (3)
Experimenter Developed Comprehension Measures				
Taught cognitive strategies before RT	1	0	0	.87 (1)
RT only	1	0	0	1.44 (1)
Total	2	0	0	1.16 (2)

[a] Each study was counted only once in each of the appropriate tables. If a study had two dependent measures for a specific category, an average effect size was used.

[b] The number in parentheses after each effedct size is the number of studies on which it was based.

Table 4

Effect Sizes for ALL Studies[a] by Type of Test

	Sign.	S/NS	Non-Sign.	Median[b] Effect Size
Standardized Tests				
Taught cognitive strategies before RT	3	0	4	.34 (6)
RT only	1	0	5	.14 (3)
Total	4	0	9	.32 (9)
Experimenter Developed Comprehension Measures				
Taught cognitive strategies before RT	6	1	1	.87 (7)
RT only	2	0	1	.89 (2)
Total	8	1	2	.87 (9)

[a] Each study was counted only once in each of the appropriate tables. If a study had two dependent measures for a specific category, an average effect size was used.

[b] The number in parentheses after each effect size is the number of studies on which it was based.

Table A

STUDIES THAT USED EXPLICIT TEACHING PLUS RECIPROCAL TEACHING

Study	Length	Level	Type of Student	Dependent Measure	Sign.	Effect Size
Signal Words Facilitator						
Brady, 1990	25 sessions	7th	below average (native Alaskan)	Comp. test - open ended	S	.87
				Gates-MacGinitie	ns	.36
Lysynchuk, et al, 1990	13 sessions	4th and 7th	poor comp./ good decoders	Gates-MacGin./ Metropolitan	ns	.55
				comp. test	ns/S	.68
Palincsar, 1987	25 sessions	middle school	poor comp./ good decoders	summarizing (levels)	S	no s.d.
				comp. ques. (open ended)	S	no s.d.
Taylor and Frye, 1988	11 sessions	5th and 6th	average and above	Gates-MacGinitie	ns	.07
				summarizing (levels)	S	.85
Williamson, 1989	50 sessions[a]	3rd	all students	IL State Assess.	ns	.32
Story Grammar Facilitator						
Nolte and Singer, 1985	10 sessions	4th and 5th	all students	mult. choice comp. test	S	1.0
Question Type Facilitator						
Dermody, 1988	24 sessions	4th	all students	Stanford Diag. Reading Test	ns	-.32
				summarizing (total prop.)	S	3.37
Main Idea Facilitator						
Lonberger, 1988	20 sessions	4th and 6th	all students	CR test (exper. developed)	S	1.24
Graphic Organizer						
Shortland-Jones, 1985	20 sessions	Grades 1-6	mixed (summer reading program)	Stanford Diag. Reading Test	S	.77
				summarizing	ns	-.02
Informed Strategies for Learning						
Levin, 1989	50 sessions	intermed.	learning disabled	Stanford Achiev. comp. subtest	S	no adj. means

[a] number represents total regular reading instuctional periods

Table B

STUDIES THAT USED RECIPROCAL TEACHING ONLY

Study	Length	Level	Type of Student	Dependent Measure	Sign.	Effect Size
Fischer-Galbert, 1989	100 sessions[a]	3rd, 4th, and 5th	Chapter I	Iowa TBS	ns[b]	no s.d
Helfeldt and Lalik, 1976	14 sessions	5th	average	Van Wagenen Anal. Reading Scales	S	.84
Jones, 1987	20 sessions	3rd	all students	Informal reading inventory	ns	.34[c]
Labercane and Battle, 1987	28 sessions	5th	learning disabled	Gates-MacGinitie	ns	no means
Manzo, 1969	30 sessions[d]	7-25 years old	remedial (summer tutorial)	Gates-MacGinitie	ns	.14
Padron, 1985	8 sessions	8-12 year olds	Hispanic bilingual	Stan. DRT (comp. subtest)	ns	-.55
Palincsar and Brown, 1984	20 sessions	7th	poor comp./ good decoders	comp. quest. (open ended)	S	no means
Rich, 1989	6 sessions	adult	poor readers	Mult. choice comprehension	S	1.74[e]
				Recall (idea units)	S	1.10[e]
Rush and Milburn, 1988	9 sessions	vocat. college	all	Cooperative English test	ns	no s.d.

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[a] number represents the total number of chapter 1 classes

[b] may favor control

[c] average of two experimental groups

[d] number of sessions for total reading instruction program

[e] average of three experimental groups